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ABSTRACT

This report explains how student tracking systems work and why they are important. It is designed for British funding bodies, further education (FE) colleges, college staff, and software developers to introduce and support systems of student tracking. Chapter 1 provides background information on tracking and the FE sector. Chapter 2 discusses the information about individual students that colleges find useful to track, how this happens in practice, some systems in use, and benefits and difficulties encountered. It covers student number; inquiries; enrollment; personal details; learning and study programs, learner agreements, and individual action plans; funding attracted; attendance, use of learning centers, and retention; additional support; timetable; use of learning resources; accrediting prior learning (APL), assessment, progress, and recording of achievement; achievements and destinations over time; marketing; and "individualized student record" information. Chapter 3 suggests ways in which colleges can evaluate systems in use or those proposed for purchase. It provides ideas about the points at which information needs to be collected, by whom or how, and in what form. Suggestions for decision making about tracking systems are provided. Appendixes include specifications for student tracking systems, overview of 37 existing student tracking software products, addresses and telephone numbers of 6 support organizations, and list of 24 references. (YLB)

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Student tracking

Kevin Donovan

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Student tracking

Kevin Donovan

Developing FE (FEDA Reports)

Developing FE is a new journal produced by the Further Education Development Agency (FEDA). It succeeds the Coombe Lodge Reports previously produced by The Staff College. Each issue focuses on a single theme and is a key reference text for those involved with management and curriculum in post-compulsory education.

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Preface

Student tracking is the collection and use of information about individual students and their progress at all points of contact with the institution. This information may be used for curriculum, management, administrative and funding purposes and is the single most important sub-set of an overall college information system, which may also include information about the curriculum offer, finance, staff etc. It is therefore likely to be of most use if it is part of a computerised system which is linked to the main management information system.

Colleges and other institutions need improved information about individual students rather than course or programme groups. This is because of:

- the increased flexibility of the curriculum: it may be unitised, with learning programmes devised and delivered for individuals;
- three-part funding: which means that the recruitment and progress of individuals must be plotted to maximise revenue;
- the delivery of learning in workshops and using resources: so that students' patterns of attendance may vary and need to be logged, and so that the resources in use can be evaluated;
- the availability of sophisticated information systems and software which can track students and allow the manipulation of complex information eg for the purposes of targeting students and collecting labour market intelligence;
- the need to provide accurate information to funding bodies, and the use of this information as part of a system of quality control and assurance.

This report explains how student tracking systems work and why they are important. It notes the implications of student tracking for tutorial relationships and college structure and procedures and illustrates the issues and possibilities by reference to practice in the sector. Information

is given about the software and systems which are available and organisations which offer support and advice.

The report can be used to

- define college needs in relation to student tracking;
- audit current systems and procedures;
- encourage co-operation between curriculum, tutorial, learning support, pastoral and information systems staff;
- specify or re-specify appropriate systems and software;
- and ensure appropriate links with the overall college information system.

It may also encourage the move towards more flexible design and delivery of learning so information currently used about students can be more effectively gathered and manipulated to avoid duplication and unnecessary paper-based systems. It also shows how staff and students will benefit from and be motivated to use the system.

Managing the curriculum to facilitate student learning is the core business of further education. Effective student tracking is essential to sustain and strengthen the business and provide the information for quality improvement.

This publication is for the use of:

- curriculum managers and information staff in colleges and other institutions to support the development and improvement of student tracking systems;
- strategic planners in colleges and national bodies to support decisions about resourcing and longer-term development;
- external bodies such as the Funding Councils and software developers to support development activity on behalf of the sector.

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Chapter 1
Background

Information systems and individual students

The further education sector has devoted time, energy and resources in recent years to the development and improvement of information systems, particularly computerised systems. These are most commonly referred to as management information systems (MIS). Many of the systems in place were first developed to help colleges to provide statistics (eg the Further Education Statistical Return and the Annual Monitoring Survey) to the (then) Department of Education and Science and the Welsh Office. Refinements to the systems began to be implemented in the late 1980s because of criticisms that MIS were too unwieldy, suited for their original purpose but not for the provision and manipulation of management (as opposed to administrative) information.

This process has continued since the incorporation of colleges in 1993 and the consequent revised and expanded data demands of the Funding Councils. The main change in focus, and the heart of this report, has been away from global information about groups and populations of students towards information about and for individuals. The Further

Education Funding Council (FEFC) has established an information systems sub-group of its steering group on statistical needs, to monitor the use of information systems by colleges and to identify good practice and developments.

The greatest related pressure upon colleges to develop a student tracking facility as part of their information system has been the introduction of three-part funding. Formerly, college funding was based largely on student numbers in colleges at a particular census date assuming that most of these students were in cohesive groups of a year's duration. Now colleges are funded for recruiting students, for their period on a learning programme (with guided learning hours) and for student achievement. Colleges, therefore, need accurate information about individual students at each of these phases in order to maximise funding. The FEFC (1995a) announced that its tariff advisory committee had set up three sub-groups to undertake further research, including one on "extending the number of individually-listed qualifications, cost-weighting factors, and the emergence of a credit framework for qualifications", with implications for some of the issues below.

At the same time as changes in funding, the kinds of learning programmes which students can follow have become more diverse and potentially fragmented. Within the parameters of a college's curriculum offer and the resources and support available, students can elect for an individualised learning programme and an assessment regime which suits their individual circumstances. This is facilitated by the division of a number of discrete programmes into modules of delivery (MOD), which can be combined in various ways. The biggest single impetus for this change is the unitisation of the curriculum. Colleges which adopt the credit framework know that units of assessment (UOA) from a range of academic, vocational and pre-vocational programmes can be measured, compared and (if necessary) combined in valid and reliable ways.

None of this is possible unless the technology and tools are available. The existing software developers for the sector have been adjusting their

products to fulfil the need to track students, for the reasons above, and new developers and products have appeared to fill perceived gaps in the market.

At the same time colleges have been reviewing their related needs, processes and procedures in the interests of efficiency and effectiveness. There is a requirement under the new funding regimes to have an individualised student record (ISR); colleges have sought guidance from national bodies and their professional organisations on how associated practice might be developed for purposes of curriculum management. Surveys by the former Further Education Unit (FEU) – for example as part of work noted below – indicate that there is concern in the sector about the ability of information systems to support these enhanced functions.

> *Arising out of the involvement with the credit framework implementation project and the college's commitment to the validation and accreditation of the part-time programme, the project team report that further substantial changes to the student tracking system will be required. Currently the credit records of students on the full-time programme are kept manually, but a manual system will not be able to cope with the information needed when the accreditation of the part-time programme comes on-stream.*
>
> *[There is] need for guidance from the funding councils and other national organisations on data collection strategies for a unitised and modularised curriculum. (extracts from an unpublished report on an FEU project, FEU 1993a)*

An internal paper for the London Training and Enterprise Councils' (TECs') credit accumulation and transfer systems (CATS) Projects Liaison Group notes that the

> *college's computerised management information system will underpin all these changes. [and] it is essential that developments are business – not technology – driven (extracts November 1994)*

Many of the student tracking systems (or aspects of them) in use in colleges are not computer-based; they rely on information collected and disseminated by a mixture of word of mouth, paper and electronic systems. They reflect, in part, the traditional personal and tutorial relations which exist in colleges. This has been illustrated by a number of FEU projects. To give just one example, work on GCSEs in colleges (FEU 1994a) showed a large majority using paper-based tracking systems. Other examples are given in this report. Whilst the factors above may make the move to comprehensive electronic/computerised systems inexorable, it is important that tutorial and other relations are enhanced and supported rather than damaged. This report offers some related guidance.

The report is intended to support all concerned – funding bodies, colleges, college staff, software developers – whose aim is to introduce and support systems of student tracking. It is part of a portfolio of related work from FEU and its successor body the Further Education Development Agency (FEDA) which includes:

- a proposed planning handbook on MIS and the curriculum to help colleges review and re-specify their overall information system;
- a range of publications and support material on developing and implementing a framework for credit;
- a discussion paper on CATS (credit accumulation and transfer systems) and MIS, and reactions from the sector, resulting in further development activity with funding bodies;
- a project to monitor the impact of FEFC funding methodologies (FEU 1994b);
- a project on evaluating systems of recording attendance (FEDA 1995b);
- project work on implementing flexibility in colleges.

As well as providing guidance and practical information, the report contains a reference section of publications (Appendix 4) and organisations (Appendix 3) which will be of use. The project leading to the report was undertaken in co-operation with the National Council for Educational Technology (NCET); the Council's reports on trials of some related software are included in appropriate sections below.

What to track and why: the ideal student tracking system

A student tracking system must provide useable information about any student's contact with a college at whatever point of progress and over time. Any vision of an ideal, whether or not it is appropriate, is still far from current practice in most colleges. Many are in a development phase adapting to changing internal and external circumstances:

> *We are in a period of transition from fragmented systems for applications, enrolments and on-programme, to an integrated student tracking system which is intended to track students from enquiry to achievement and destination. (College H)*

> *We are currently evaluating several packages, as well as conducting a feasibility study on modifying our in-house enrolment database to analyse and store student tracking information. (College N)*

This report allows organisations to decide how much of the ideal exists or is necessary, to evaluate current practice and compare their own experiences, and to specify systems which provide what is required. There are a number of published specifications (Appendix 1) against which existing and proposed tracking systems can be measured and Appendix 2 provides an overview of existing student tracking software. Chapter 3 of this report suggests ways in which colleges can evaluate systems in use or those proposed for purchase.

The FE mission

The further education (FE) sector aims to increase participation by young people and adults for several reasons: for example to attempt to reach national targets, because FE is seen as one route to economic success, and as part of a perceived social mission. Greater participation requires access to FE by previously excluded individuals and groups. Increased participation and access implies different structures for teaching and learning, and extended use of resources. Some colleges have adopted quality systems which have a customer focus and which cater for the aspirations of individuals, in order to attract and retain students. Knowing customers and their needs (eg where they come from and where they go to) provides improved commercial and labour market information and allows for accurate, targeted marketing. Such accurate management information permits the modelling of possible futures for a college and also allows provision of information to support inspections and other interventions. To achieve its mission, FE needs information about individuals, and their contact with the sector must therefore be tracked.

The funding of FE

Both the English and Welsh FE funding methodologies reflect the mission outlined above; they also reflect the view that student achievement results from more than time spent in formal 'lessons'. Institutions are rewarded for recruiting and retaining students, for their periods in formal learning and for their achievements, as well as for any specified and identified additional needs or other weighting factors.

To maximise funding opportunities, colleges need to have accurate, auditable evidence of involvement with individual students whose progress at each of these stages must therefore be tracked.

> *[The tracking software is] not configured to FEFC and ISR needs, although this can and will be done. (College A)*

In relation to funding, the tracking system helps to show the number of hours in attendance, gives us an accurate picture of whether students are still in attendance on census dates and, of course, helps identify areas where students may need [guidance] or course quality is not up to scratch. (College S)

The FE curriculum

FE's funding and mission, and work on effective curriculum design, teaching, learning and tutorial systems (whether by bodies such as FEDA and its predecessors or as a result of official policy), have produced a curriculum which is more individualised in every way. For example, students of GNVQs and NVQs must register numerous individual successes rather than end-of-year or end-of-course achievements. Colleges need to have systems in place to record these successes and store them for later retrieval (whether to certify accumulated success or to replace lost certificates).

As the FE curriculum becomes more individualised, it also becomes potentially more atomised or fragmented. More than ever, if staff and students are to have a clear view of progress through the curriculum and if success is to be maximised, there must be effective information systems in place.

To offer an effective and efficient curriculum to individuals, colleges need to track all contacts with and progress by individuals.

Generally the college is pursuing tracking by use of a manual document which is directly linked to the student portfolio and a unitised curriculum. (College A)

An important element of the [College AA] project was the introduction of student tracking via a system called TRAK, developed in-house. This system was developed in conjunction with Project Janboree, a collaborative modularisation initiative between [3 colleges]. The TRAK system records all decisions made as a result of action planning and provides central data suitable for FEFC returns, including learner's personal details, individual programme, attendance, progress and achievements. The system incorporates the use of an

optical mark reader (OMR) for analysis of register returns. The optical mark reading feature of the student tracking system means that action planning report forms can be processed as frequently as necessary without incurring large administrative overheads. However, the system operates at programme level only at present. The next step will be to streamline the system and to develop the unit layer below the module layer in the software. (Extracts from an unpublished report on an FEU project, FEU 1993a – further progress has been made since this report was written in April 1995.)

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Chapter 2

What to track?

The following sections give some indication of the information about individual students which colleges find useful to track, how this happens in practice, some systems in use, and benefits and difficulties encountered. A tracking system will use and provide information for particular purposes. It would be less onerous if information which was already available on the main college management information system could be utilised, but a common experience is, as reported by one contact, that "presently we are heavily dependent on MIS software X and finding it increasingly inadequate and cumbersome".

Colleges, having specified the purposes of student tracking, should specify any software so that, if it is not a totally comprehensive system, it can import and export information from and to other software systems. The inclusiveness of particular systems varies; often they have been designed for particular circumstances at specific times. One college reports employing a system providing:

> *..overall student tracking including enquiries, applications, enrolments, attendances, attainments, destinations, counselling [sic], as well as personnel, staff development etc. (College D)*

Another college reports progress on a tracking system:

> *developed in-house using freely available tools [and] set up to interface with many different systems used by the FEFC.*
>
> *The system effectively starts as soon as a student applies or inquires of the College. The application is comprehensively tracked during all stages of the application process. This helps us to identify early those students who we feel to be most 'at risk' and those who will become firm enrolments. As we have collected information during the application process, the enrolment session is used to confirm details. At this stage the student PIN (personal identification number) is set down in barcode form and allocated to the student. This number is entered by staff onto a standard paper register and is used by students to swipe their attendance. Each student class contact is logged; in this way we have accurate information about student hours, class sizes, and give early warning of student absence patterns developing. (College S)*

Student number

Any system of recording information about an individual is improved by some kind of 'unique identifier' which can link all pieces of information to that individual. In a college this might be an enrolment number. In a computerised system tracking would be enhanced if there were some way of identifying all the activities which involve a student. Currently everyone has a National Insurance number and other numbers, for example of passports or driving licences, but there has been intense debate about the implications, particularly in relation to civil liberties, of giving students a unique and permanent number. Related issues, the advantages and disadvantages, have been discussed by the Association for Database Services in Education and Training (ADSET), for example at a seminar in June 1995 from which transcripts have been published (ADSET 1995a).

> *There is a commonly held view within the education and training community that we need to know much more about how students move from college to*

college, school to university, training credits to guidance interview and so on. In addition, what job particular individuals take up following their learning is vital for helping us assess the impact of these different learning paths. Although we can learn much from surveys and cohort studies, the ideal scenario is one in which students are tracked throughout their learning career and into the workplace so that the actual progression routes can be identified.

At the moment each student is identified by each learning provider, awarding body and funding authority through the use of different, largely institution specific, codes. The proposition of this seminar is that every student should have an identification number unique to them but common to any learning organisation that needs to keep information on them. (ADSET 1995b)

Colleges need to discuss the issues raised above and ensure that, within the bounds of the Data Protection Act and other restrictions, students can be identified easily and over time and for all contacts with the college, in ways which are consistent with a tracking system.

Enquiries

Enquiries about college programmes can be logged (with dates, names etc) to provide information about patterns of demand, the effectiveness of publicity and so on. If enquiries can be linked to subsequent enrolments there will be some information about a new student on file already, which may save on administration time. If there is no enrolment at an expected time, reminder letters or offers of alternative programmes can be sent to potential students if, for example, management information also alerts users to vacancies on programmes and can link these to previous enquiries.

Enrolment

The process of enrolment allows new technology to come into its own and the benefits of tracking to be illustrated. Enrolment can be speeded up by having information (eg from an earlier enquiry) already available

on pre-printed documents which may be optically mark-read, by allowing students to enrol at computer terminals or remotely by telephone or electronic mail, or by converting part of an enrolment document into some form of identity card. The card could have a student photograph, a unique number or bar code which might give access to resources, or a smart card which can record use of the computer network or permit an amount of photocopying. The linked NCET project (see Appendix 3) experimented with the use of video and 'ion' cameras to incorporate photographs into records of achievement.

To acquire the relevant funding, students need to undergo some initial auditable guidance process which can trigger other aspects of tracking as outlined elsewhere.

> *As well as enrolments we are logging admissions (which are tracked in some detail and administered centrally), resource usage (staff and rooms), and student attendances via OMR (optically mark read) registers... We currently only log enrolments on units/modules to a limited extent, for example if there is an impact on funding. I foresee that logging on a modular basis will increase but, in view of the complexities and resource implications, we proceed with caution... In effect, the register logs attendance on activities and we might make more use of this in the future (in the context of monitoring a unitised curriculum). (College C)*

Personal details

Much of, but possibly not all, the details about a student's personal circumstances is included in the English Funding Council's individualised student record (ISR), further details of which are included below. Basic information like addresses (and changes in them) and dates of birth, which is available to a range of staff, allows mailing lists to be compiled, students to be contacted more easily, birthday cards to be issued, eligibility for grants and so on to be determined, as well as making possible a range of pre-formatted reports (on gender, ethnicity, employment etc).

There are considerable savings of time and effort if all possible personal details are held, to be aggregated as appropriate for particular purposes.

Learning programmes, programmes of study, learner agreements and individual action plans

Part of the guidance and enrolment process referred to above may be an opportunity for a student to choose from a range of available options or construct an individual learning programme from a menu of possibilities which forms a college's curriculum offer. This might include, to give just one example, a combination of A level, GNVQ and NVQ or parts thereof.

Combination is made easier if the components can be broken down into modules of delivery and associated units of assessment. The FEU/FEDA 'framework for credit' publications (eg FEU 1995) include full and developing descriptions and discussion of all aspects of a unitised curriculum. All the agencies and organisations which have adopted this model have also noted the importance of effective management information systems.

Options available can be stored in a database and a student's choices can be recorded. If this is part of a tracking system, the subsequent stages of progress, learning experiences, results of assessments, and achievements (as outlined elsewhere) can be logged and tracked. Thus, College S has put the FEFC course directory software, adapted to fit the college context, onto the MIS network.

There has been major progress in Wales in recent years to develop the curriculum using FEU/FEDA's framework for credit and there are lessons to be learned by English colleges. Juliet Pierce, Director of the Fforwm Modularisation and Credit-Based Development Project, reports that the project:

> *...currently maintains the Wales unit database with externally quality assured OCN (Open College Network) units, stored in WordPerfect files, and an index*

and sort facility for subject area, level etc. The index organises units into Superclass 2 categories. Read-only database copies are available to all colleges in Wales. The database is designed for use more widely (the project is considering electronic data exchange and database software suitable to relate to the student tracking needs of colleges, OCNs and Funding Councils). A [student tracking] user specification is also being prepared by Fforwm on behalf of all the FE colleges of Wales... [for details see Appendix 1] Use of a database of units by curriculum design staff means extensive staff development and location of the database on a college network to enable the widest access. (extracts from a report to FEDA)

At [College BB], unitisation and accreditation of the complementary studies programme has required considerable adaptations of the MIS system to meet [Open College Federation] requirements. The choice of units in the programme is large (approximately 60 at any one time), and all students (approximately 1000) take at least one unit, and mostly two units, and make new choices each half year. Recording choice, level, achievement and attendance, and subsequently collating the information in terms of award of credit could not have been done without the software which has been devised during the period of the project. It has provided an interesting insight into the difficulties of recording and tracking achievement and has not been without problems. The software is being improved as the programme runs for the second year. (Extracts from an unpublished report on an FEU project, FEU 1993a – further progress has been made since this report was written in April 1995)

The relationship between a curriculum based on units of assessment and modules of delivery, and data required by the Funding Councils can be problematic. A former FEU working party on related issues issued a discussion document early in 1995. Responses to this showed overwhelmingly that recording a more flexible curriculum was not easy for colleges as the following extract from the associated report illustrates. Respondents were asked whether they had difficulties recording existing flexibility. They reported:

...incompatibility between definitions used by funding and other bodies in relation to recording information about students and programmes, and those used by colleges developing flexible curriculum offers; the associated difficulties of using current information systems to record flexibility, whatever the definition, and linking different systems which may then be used; hesitancy over curriculum design where it was felt that there might be incompatibility with funding and information regimes, in addition to divergent definitions.

and detailed responses and examples included:

There are too many terms in use which is partly due to tradition and sadly due to national bodies introducing their own versions eg FEFC, TEC etc, eg course/programme of learning /module/unit etc.

Units/modules – confusion. Defining additional/complementary studies for funding purposes. Need to carefully audit all complementary activities.

Problem of the multiplicity of qualification aims of a number of programmes....

so that one reported:

We are currently setting up a system which, hopefully, will help us to record this flexibility, or at least start to move down that path, via student tracking. Our present problem is 'putting together' different relevant items, at present on separate data bases, machines etc so that we have a coherent 'single' system of inputting and extracting information. (extracts from an unpublished report of the FEU CATS/MIS group 1995)

One college (F) reports that it is developing a student tracking system to record qualification aim, course code and module numbers; another reports that "development is being held up by lack of information from FEFC on their modularisation intentions." (College N)

Various groups, including the National College Management Information Systems (CMIS) Board (now part of the National Information and Learning Technologies Association [NILTA] – see later in this report) and the London Open College Federation and others, have

developed appropriate user specifications. In Wales there has been major progress because of the work reported above. This has led to the development of a specification for a student tracking system which can deal with the requirements of the Funding Council and of a unitised curriculum, including a definition of standard terms in use. This specification is included as an appendix to this report and will also form the basis for further development activity in England where, meanwhile, the situation is typically that:

> *We have a largely paper-driven system for assessment of learning support and learning agreements which, at the moment, has little or no impact on the newly introduced tracking software. A huge gulf between the information-gathering function and the process/development function of student tracking; a long way to go. (College B)*

At the same time in the USA there has been an attempt to produce a 'learning environment for under-prepared college students'. This five year (1992–97) project aims, amongst other things:

> *...to develop an intelligent, adaptive, computerized management system that would diagnose students' difficulties, provide individualized instruction, monitor their progress across several disciplines, and assess their performance. (Miami-Dade Community College 1994)*

Funding attracted

Both the English and Welsh FE Funding Councils require information about individual students for funding purposes (as well as aggregate data in relation to, for example, the achievement of national targets). In England this requires colleges, for example, to know how many entry, on-programme and achievement units are associated with individuals, and whether students are eligible for additional support. Claims for the demand-led element (DLE) of funding can be based on the individualised student record (FEFC 1994a) and see also below. In Wales, and for students resident in Wales, the current funding methodology

relates also to home postcode, to encourage wider participation from areas of socio-economic deprivation.

> *The data from the OMR registers is used to monitor withdrawals and check on people who join after the normal start date (ie it informs the DLE [demand-led element] return)... We identify remitted fee and SLDD enrolees on the database and, so far as possible, monitor reasons for withdrawal. (College C)*

> *In relation to funding, the tracking system helps to show the number of hours in attendance, gives us an accurate picture of whether students are still in attendance on census dates... (College S)*

Students attracting training credits and other funding associated with Training and Enterprise Councils must also be tracked.

As yet there is no direct correlation between units of funding and units of assessment in the context of a credit framework, although the FEU/FEDA documents on this (eg FEU 1995) have pointed out the future potential. Currently this means that terms must be used carefully (and particularly in a student tracking system) and there is undoubtedly further development work required. However the National Open College Network (NOCN) has reported that FEFC intends to introduce cost weighting factors to open college network courses during 1995/96, give an achievement weighting allocation the following year and, if that proves workable, plans to use credit-based achievement more widely. A general meeting of NOCN (27 February 1995) heard that "where there is no appropriate NVQ, OCN accreditation may be used for TEC programmes with output-related funding". (extract from meeting notes)

A project (FEU 1994b) to monitor the impact on colleges of the FEFC's funding methodologies will report in the near future.

Attendance, use of learning centres and retention

In the course of a project examining the maintenance of quality during curriculum change, participating colleges attempted to use management

information systems (MIS) to identify trends and patterns in attendance, retention and punctuality. A variety of experiences emerged:

> *Most of the participating colleges' MIS could not yet deliver such information regularly to course teams, although several reported being close to being able to do so. Some colleges therefore set up dedicated databases to provide the information and others paper-based systems. While the dedicated databases were useful for project purposes, their more general use would not be recommended because they needed too much time to set up.*
>
> *Many teams were sceptical, not just about the ability of MIS to deliver such data, but also its usefulness to the team. Several said, for example, that even if it did work, it would only give them back information they had earlier fed in.*
>
> *As it was used, attitudes began to change: people became convinced that it could deliver data regularly. In one college, for example, the project team's attitudes towards the centralised provision of such course-based data changed dramatically from negative to positive. This appears to have been because:*
>
> - *participants had evidence that the college systems could provide accurate and regular data;*
> - *the MIS staff had clearly communicated effectively the range of information that could be provided;*
> - *the staff realised the management uses to which such information could be put.*
>
> *Despite the limitations of system and attitude, most colleges managed to provide their courses' teams with the required data in some form. This was helpful in identifying trends early and sometimes possible problems relating to aspects of the programme, individual staff members, individual learners or groups of learners. (FEDA 1995c)*

One project (FEU 1994c) identified how colleges monitor and respond to student absenteeism. Meanwhile other colleges have been able to use

available information for related purposes. For example (and as noted above in another context):

> *The data from OMR registers is used to monitor withdrawals and check on people who join after the normal start date (ie it informs the DLE [demand-led element] return). (College C)*

College I, which has a "computerised recording system using a paper register for individual events", reports that this "allows for accurate tracking of students and staff", but that it is "completely reliant on correct completion and recording of registers".

One college system works by issuing swipe cards to students and staff so that it:

> *...tracks students on registration, and at various points during the day via responsive terminals normally installed at workshops, library, learning resource centres, sports hall, computer rooms, large lecture rooms etc. The sessional attendance report highlights non-attenders by tutor groups... Real-time operation allows users to be monitored or found easily and cost-effectively. Messages to students and staff are always given quickly on registration. (College E)*

> *We are monitoring usage of the college learning centre using swipe cards and Public Access Terminals software. (College C)*

Another college also uses swipe cards for entry to learning centres which double as student enrolment cards. However, it notes a design problem with the card "Up to 20% have to be keyed in manually" and its main limitation if used only for this purpose:

> *It merely records attendance. There is a great need for a system tracking student progress as related to new flexible curricula. (College K)*

> *We use an MIS which can provide absences/withdrawal information. As far as tutors are concerned it has proved of very limited value. General education staff*

have developed their own database... Various systems need pulling together. (College R)

Effective tracking is needed to support employers' work-based learning programmes and the use of realistic working environments.

Another current FEDA project is evaluating systems of recording attendance.

Additional support

One college in an FEU project on vocational qualifications for students with learning difficulties or disabilities, developed a system to record additional support and funding implications (FEU 1992, 1993b). College K notes that, having developed a swipe card system to monitor use of learning centres, "we are looking at the possibility of using the statistics for additional units". College L has done this: additional support funding is claimed on the basis of a college-devised system which monitors attendance in Mathematics and English workshops, and software is used to record additional support for students with learning difficulties or disabilities.

Timetable

Once individual student information is available and tracking is under way, it should be possible to correlate this with other information such as which students are assigned to which tutors and other staff, and in which rooms and at what times. Thus, individual and course/tutor timetables can be compiled and registers can be produced. Entries on registers can be made manually in the traditional way (and the results transferred later to any related information system) or alternative forms of data entry (for example OMR, swipe cards, direct electronic input) can be used.

Use of learning resources

A record with details of an individual student can be used for a variety of purposes:

> *In some colleges, for example, there are almost no records kept of whether a student actually makes use of learning resources available outside the classroom. In contrast, a few colleges have invested in swipe-card and other systems which provide detailed information for students, administrative and teaching staff, alike. It seems to me that the ability to track students' activities, either through documentation produced by the student as part of assignment work or through automated systems, is a key requirement for assessing the effectiveness of learning resources. (extract from* ***The Learning and Technology Committee: Progress to Date****, a paper presented to the AfC Annual Conference by Sir Gordon Higginson, FEFC 1994d)*

Thus, in theory, information about individual achievement could be linked to the use of learning resources to support decisions about preferred learning styles for individuals and about investment in resources for institutions. The kind of smart-card technology referred to above allows the extension of this regime to other aspects of a student's life, for example use of library facilities or access to an entitlement to photocopying. Coventry University has developed such a card, which also functions as an identity card and which:

> *...carries a bar code set to the library's existing standard. This is either taken from the central registration database (for existing students) or issued to new students and down-loaded to the library system. High energy magnetic stripes (to ISO standards) allow other facilities to be controlled by the same card and, in the future, the university will adopt access control and other accounting and catering features. (Healing 1995)*

Manchester Open Learning (part of Manchester College of Arts and Technology) has developed a database of the learning materials which it produces linked to assessment criteria. The Media Development Officer has noted:

We are now putting the full text of all our work into our database. These texts are tagged with industry standard tags which allow them to be read straight into a page lay-out programme... The other development we are progressing is to cross reference all our texts within the database to relevant NVQs. This allows a search on an element or [by] performance criteria... (from a note from David Wardell to FEDA, May 1995)

A description of the system is included in the section on student tracking software (see Appendix 2).

APL, assessment, progress and recording of achievement

There are computer-based systems which can assess a student's competence in a particular curriculum area. At the outset of a phase of learning this can help to determine the shape of an individual learning programme: which units need to be achieved next and in which combinations, and so on.

The linked NCET project (see Appendix 3) included work which indicates "that assessment delivered by multimedia could be successful if applied to a variety of screening instruments... Improvements in speed of analysis were particularly noted. This project has also been instrumental in the college devising a new assessment procedure." Another college in the project "explored the possibility of using a computerised adaptive testing system (developed in the US) in the context of UK further education".

Students can return to assessment 'packages' at subsequent stages of their programmes for further assessment, and progress can be entered into a record of achievement. The integrated approach at Barnsley College is described in **Open Learning Focus** (OLS 1995).

The NCET project included an experiment in one institution with the use of video and 'ion' cameras to incorporate photographic evidence in records of achievement for students with learning difficulties. A school in the project piloted the use of computerised comment banks for

reporting to parents and using an optical mark reader to record common skills. Students at a university in the project used an 'electronic learning diary'. Another university, with links to two FE colleges, experimented with computer-based peer assessment on a franchised course.

Some colleges allow students to update their own record of achievement. Related information is available from NCET and FEDA (see Appendix 3).

A collaborative link in the NCET project compiled a core skills database

> *in a language which was appropriate for students so that they could identify the skills they possessed and import this information into a separate package used to produce the National Record of Achievement... [One] unforeseen outcome was that managers developed a greater understanding of the potential benefits of the use of IT in this area.*

A Scottish FE college piloted software which records integrated assessments and student achievement on care courses.

Whatever the procedures used for recording initial and subsequent achievement, the fact that the information is available helps tutors to discuss particular assessments with students, provide feedback, discuss progress and help to identify particular support or new directions which may be necessary.

One college has experimented with workplace assessment as part of tracking students on NVQ programmes:

> *We are developing interfaces to facilitate student details being down-loaded from our MIS onto portable computers, ready for assessors to take to the workplace. On completion of student programmes achievement information will be up-loaded into the MIS to complete the individualised student record. (College J)*

The NCET project records the advantages and disadvantages of such procedures for staff, who found the system in use saved time more at the summative stage, and students who benefited from a "detailed view of

their progress through the NVQ award" and could "record details of evidence being submitted against each of the standards, cross-referencing where appropriate".

Another college has used some specialist software:

> *The system monitors student activities at present exclusively in electronics and science in i) real time and ii) historically. It may be used to assess and grade assignments produced in competence terms providing a detailed analysis of results for each student. It provides a summary for groups and for units/modules. It also logs the use of the system and [study] modules examined. Costs of units may also be added to the data...Setting up individual modules in competence terms is time-consuming. But [the system] is very easy to use once set up and, more importantly, easy to interrogate. (College Q)*

Some colleges have explored systems which allow individual students to update their own records of achievement (eg by entering new information on a pre-formatted computer disc) as a basis for discussion in tutorials. This raises the issue of how much information should be held on a central system. It may, for example, be appropriate to record centrally summative information required for college management or external purposes, but to develop alternative separate systems for formative information to avoid data overload. A college might consider making students responsible for the latter within a framework of recording, assessment and tutorial services.

An FEU project (FEU 1994d) has assessed the extent to which models of action planning and recording achievement can be applied to adults learning in different contexts. Another project is examining the development of effective tutorial systems.

Achievements over time

The introduction and growth of qualifications such as GNVQs which are based on smaller divisions or 'units' has created problems for student tracking and provoked discussion about how much information should

be recorded by tutors, how much included in student records and/or tracking systems, and how much is necessary for external bodies. Some of this has to be a college decision but it is one which should be taken to avoid overload, a 'paper nightmare' (in the words of one respondent).

Can all the information which is necessary for any user be collected at one time and then dis-aggregated to meet particular needs?

> *[One] major step forward is the agreement that assessment recording can now be carried out at the 'element' level rather than at the 'performance criteria' level. This should help to simplify both the process and the recording of the process leading to less paperwork. (AfC 1995a)*

At the time of writing there is public discussion about moving to assessment at unit level. In curriculum terms such information is important for tutors so that progress and any particular difficulties can be discussed with students. Information on individual students needs to be maintained over time so that any credit accumulation can be chronicled over periods which are not traditional programme lengths, allowing the appropriate funding to be claimed and any qualifications to be awarded.

> *We record achievements on MIS in so far as they affect funding, ie final outcomes or partial achievement. We will probably log centrally some outcomes on a modular basis (eg NVQs) especially where we do not receive feedback from the examining bodies and we are dependent on internal college records. (College C)*

> *Student tracking within a credit-based environment needs to include tracking across institutions as well as within them, and needs to include work- and leisure-based learning. Ideas like a student transcript carried as plastic, plug-compatible with institutional software, and the whole idea of moving the emphasis of software away from the management of institutions toward the management of student's accumulated learning – all this seems important. (Contact T)*

Destinations over time

Students' immediate destinations are required, where known, by funding bodies and can be included in a student record. It might also be useful to maintain that record over time for the purpose of updating (eg addresses), recruitment (eg a change in employment circumstances might offer an opportunity for further training), or marketing and quality (eg to illustrate eventual entry to higher education by former students on certain programmes).

Marketing

Accurate information about individuals has a number of uses. For example, targeted mailings can be sent to particular categories (by sex, occupation, postcode etc) which might be linked to a particular marketing drive, funding arrangements, or an aspect of the college's mission. Information held by the college can be linked to other publicly-available information including census data or commercial directories:

> *The central databases are available college-wide via a local area network. We are using Microsoft Access to extract reports and disseminate and we are linking the MIS information to other databases, eg for market research (which can have a student tracking dimension). This will undoubtedly be an increasingly important element in our strategy for student tracking. These systems are being developed in-house. This feedback is presented on screen in a user-friendly format that allows 'drilling down'.* (College C)

Accurate information here allows colleges to survey users and non-users of college services, for example to undertake surveys of student and employer perceptions. A full discussion of some aspects of the use of census data is included in **Community Profiling** (FEDA 1995a).

ISR information

Much of the impetus for improving student recording and tracking systems has come from the need to supply data to funding bodies; some of the technical impetus has come from this and from systems of electronic exchange of data with awarding bodies and others. This report has emphasised the need to maintain the supremacy of curriculum and tutorial concerns but it is clear that an 'individualised student record' has the potential to meet the needs of many users:

> *Until 1994-95, all student data returns used enrolments as defined for the further education statistical return (FESR) as the basis for counting. The funding methodology requires that institutions count students and their associated qualification aims and this is reflected in the design of the ISR [individualised student record]. (FEFC 1994a)*

The FEFC has been developing the ISR and using it to collect data from colleges and to fund them, although the Council's related computer program accepts other types of input about individuals or groups of students. The original specification for the ISR and initial related data collection arrangements were set out in FEFC **Circular 94/10** (1994c) when a college ISR support manual was also published. A subsequent circular (FEFC 1995b) consulted the sector about proposed changes to the specification so that, from the 1995-96 teaching year, it might include the following information about students:

student data set reference
student surname/family name
student initials
date of birth
sex
home postcode
country of domicile
ethnicity
disability

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additional support band
date of first enrolment
destination
standard college tuition fees
amount of tuition fees received or expected for the student
reason for partial or full non-payment of tuition fees
major source of tuition fees
institution specified data (for DLE program)
further information about HE students

about qualification aims:

qualification aim
data set reference
qualification aim reference code
mode of attendance
primary learning goal
type of tuition fees for the qualification aim
standard college tuition fees for the qualification aim
amount of tuition fees received or expected for the student
reason for partial or full non-payment of tuition fees
major source of tuition fees
FEFCE or HEFCE funding
major source of funding other than tuition fees and FEFCE/HEFCE funding
minor source of funding other than tuition fees and FEFCE/HEFCE funding
franchising arrangements
tariff units
guided learning hours
start date
expected end date
actual end date
completion status
outcome
grade
resit

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child care
institution specified data (for DLE program)
major source of tuition fees (HE students)
year of programme (HE students) module delivery:

module delivery
data set reference
qualification aim reference code
start date
subject
method of gaining module
date module gained
guided learning hours
additional tuition fees
mode of attendance
qualification on entry:
qualification on entry data set reference
qualification on entry reference code
grade
date awarded

The results of the consultation on proposals in **Circulars 95/10** and **95/12** are detailed in **Circular 95/23** (FEFC 1995c) which has two accompanying manuals and executive summaries.

Some of the information in the ISR could be useful in other aspects of student tracking. However there is evidence that college information systems might need to make included information more accessible to a range of staff, and that some useful information (eg home address) is not included or (eg in the case of module data) needs further work to make it compatible with (eg) a credit framework.

> *...we are battling (as I expect most colleges are) to have in place IT systems that keep up with the demands of the ISR and the funding methodology. We have recently established a student tracking task group that is addressing some of the issues. I can't report many major breakthroughs so far... Generally we*

concentrate on logging aspects that inform the ISR and funding method (which invites the criticism that our MIS is being excessively FEFC driven)... The FEFC requirements are very complex, involve monitoring the student over their proposed programme of study in its entirety, and greatly increase the extent and difficulty of gathering, entering and extracting data. Although the data gathered will potentially facilitate tracking, extracting the information is difficult... (College C)

Issues related to student tracking, the ISR, funding, unitised programmes and qualification aims are discussed elsewhere in this report but, in conclusion in this section, it is worth noting the findings of one recent survey that:

Huge sums are being invested in the systems, staff and management time needed to fulfil the FEFC's student data requirements... [and many of the] phase one colleges believe with hindsight that the implementation period was too rapid given the underdeveloped state of the software. (AfC 1995b)

Perhaps the moral for colleges is: design a student recording and tracking system with the student and the curriculum at its heart – then ensure that the system can, if necessary, be enhanced to provide student records required by other bodies. Starting the other way round may distort the core activities of supporting learning.

Chapter 3
How to track students

Who needs to know what and when?

This section attempts to provide some ideas about the points at which information needs to be collected, by whom or how, and in what form. In material supplied to FEDA as part of related project work, Stafford College staff emphasise that tracking systems should:

(a) *provide users of information with relevant, accurate information which is easily accessible and digestible, and available when they need it;*

(b) *place minimum demands on providers of information;*

(c) *be such that resources required to implement systems are the minimum required to achieve the necessary outcomes;*

(d) *be sufficiently flexible to provide for future needs as well as the present (as far as can be foreseen); [and]*

(e) *have credibility with all involved.*

College contacts report a range of related positions:

The main 'hands-on' users at present are support staff and approximately 20 senior lecturing staff (curriculum managers, mainly). Using Microsoft Access we are giving them prompt feedback about, for example, enrolments, unit totals, admissions and withdrawals for each curriculum area. The feedback regarding unit totals is analysed according to various FEFC categories: entry, on-programme, remitted fee, achievements and SLDD. (College C)

There are 12 machines put aside for heads of school to access information. Standard and customised reports are available to all staff. Students may at any time see the information we hold on them and can request an attendance print-out. There are no facilities for students to log into the MIS system. (College S)

We are working hard at improving tracking systems. To date we have no coherent corporate systems worthy of report. (College G)

It appears that data is input by a variety of people and in a variety of forms: most commonly it appears that enrolment forms and paper registers are completed by tutorial staff and data entry clerks then transfer the entries to a computer system. The use of swipe cards, bar codes, optically mark-read information and smart cards containing encrypted information is growing but still not overwhelmingly common. The logic of previous parts of this publication is that data needs to be collected more consistently and coherently (and less onerously) so that information can be made available more readily.

It is thus possible to analyse what information is needed about or for individual students, decide who needs the information, how it might be collected and disseminated. The following outline (adapted with thanks from material supplied by Stafford College) can be used, amended or augmented by colleges as part of the design or improvement of student tracking. The outline should be used with the tracking system specifications provided in Appendix 1 to plan procedures and systems relevant to the institution.

1. Who is enquiring about what the college has to offer? Where do they come from?

This information can be logged in a computer system to provide information to marketing staff and (in summary) to college managers. Any later application can be linked to an earlier enquiry.

2. Who is applying for a place in the college? What are their personal details? What is their planned programme of study?

This information can be used in summary by marketing staff and college managers. Information about individuals will be needed by admissions staff and curriculum team leaders. The allocation of a number to an individual applicant (eg linked to an earlier enquiry) can provide the basis for subsequent tracking.

3. After any admission/guidance interview, who has been offered a place and on what programme? What is the content of each individual action plan? Who requires any specialist assistance with (eg) learning support, accommodation, transport, child care etc?

Related summary information will be required by management and admissions staff, as well as curriculum team leaders. Support information is needed by the specialist staff responsible, and information about offers of places can be issued to students, parents, employers, schools etc as appropriate. This information about individuals can now be used as the basis for all subsequent tracking and exchanges between students and the college.

4. Who has enroled and paid fees?

College staff as above need this information; subject tutors and finance/administrative staff can now also draw upon the details.

5. At entry/induction, has each student gone through an induction programme? Are there any changes to individual action plans and programmes? Which students have been allocated to which personal tutors? Have the specialist needs

of students been met? Has a learning agreement been signed?

As well as the staff mentioned above, personal tutors (if different) need this information. Information about individuals can be used to support their progress but also, in collated form, helps to predict demands for particular resources (library, computers, learning centres etc).

6. During a student's time on-programme, are there changes to the programme? Has a student withdrawn? Is progress satisfactory? Is attendance satisfactory?

Summaries of this information can be used by college management. For example it will form the basis of some claims for funding and returns to Funding Councils and TECs. Information about individuals will be used as part of recording achievement and during tutorial sessions (when individual progress can be reviewed on the basis of an individual action plan), reports to employers etc, returns for assessors and verifiers. Unit accumulation can be logged.

This will be cumulative information held in individual records about attendance and achievement. Decisions can be made about which is also held by students (eg as part of their own updating of a record of achievement) and how to archive information about previous students.

7. At the achievement stage, towards the end of a programme, and subsequently, it will be necessary to record: reference information; examination/assessment entries; guidance and careers support; achievements/qualifications; post-programme destination or intention.

This information will be required by: UCAS etc; employers; college examinations staff; awarding bodies; tutors; guidance staff; curriculum team leaders; and in summary returns for college managers, Funding Council, TEC etc.

The information can be used to support progress inside or outside the college, and be the basis for written references, testimonials etc. The

concerns and needs outlined by one college may resonate with others.

The institution concerned noted the following as issues:

1. *Restructuring of the way in which we record courses in the database so that this is more consistent with ISR and funding and college business needs (which may include unitisation).*

2. *Much closer liaison between academic and support functions to enable clear identification of qualification aims and other programme details (guided learning hours, periods, expected end dates) and the detailed tracking required by the ISR.*

3. *Improved data collection mechanisms (eg need to revise enrolment/application forms to reflect new requirements, plus guidance certificate, plus feedback forms regarding changes to a programme of study).*

4. *Raise the profile of service regarding logging and monitoring achievements and progressions.*

5. *Resource implications (eg staff, equipment, skills training). (College C)*

Making decisions about tracking systems

How can a college choose between the competing claims of software suppliers? How can systems in use be evaluated for suitability, improvement or replacement?

Adopt a team approach

Student tracking systems may be installed and maintained by information staff in colleges, but their chief value is to provide information to curriculum staff about students, and (possibly) to provide information to students about the curriculum and their progress. Information staff, curriculum staff and (as appropriate)

students should co-operate in evaluation and proposals for development and use:

> *The new system provides broader functionality and greater flexibility, but we must define more precisely what we want. System development is difficult in a large institution, particularly if recently restructured and facing budgetary constraint. Staff development (often a last thought) and the infrastructure to provide sufficient and adequate access to the network are also very important. (College H)*

Compare and contrast

The scope and value of a system can be evaluated by collecting literature from suppliers but, more usefully, by examining and using practical applications whose strengths and weaknesses can be assessed. Suppliers will arrange demonstrations and can provide the names of institutions where the system is in place and where colleagues might offer comments.

Ask the right questions

- What do you want the system for?
- What difficulties do you have with the present system or which you hope a new system might overcome?
- Do you wish to identify improvements which could be made to currently available software?
- How does your system or that proposed match the specifications produced on behalf of the Welsh Office and the National CMIS Board (see Appendix 1)?
- How will/does the student tracking system link to the main college information system?
- Are they compatible?
- Can they share data?

- Can they present information in ways appropriate to various users?
- What training and consultancy will be required and what is available from suppliers and others?
- Does any system cover the areas of interest outlined in this publication?

Remember the curriculum and remember the students

Unless a tracking system is built around the core business its purpose will be lost and its use will be sterile or worse. As well as the specification from Wales, further support will be forthcoming from the English Funding Council. Its **Circular 94/05** (FEFC 1994b) invited colleges to bid for funds to assist the development of information systems and a group of colleges is working with FEDA on a student tracking specification.

A useful case study is contained in the related NCET project (Appendix 3) involving one small specialist college. This college "wanted a system which would provide greater involvement of the students in the assessment and recording process and an efficient way of providing reports..." and developed its own integrated management information system.

Appendix 1

Specifications for student tracking systems

There have been major developments in Wales in recent years relating to a modularised curriculum and credit framework which have led to further related work. For example there is a Welsh database of quality-assured units of assessment. There has also been a project, supported by the Further Education Funding Council for Wales (FEFCW) and the Welsh Office, to develop a specification for a student tracking information system (see below). Other organisations, including colleges and local open college federations, have also developed user requirements. These can be used as part of an audit and analysis process in colleges to derive or specify an appropriate tracking system.

The model for student tracking included here, with the specification for the Welsh system, is reproduced by permission of Fforwm. The full specification document is published as **Student Tracking Project 1995 Report** (Fforwm 1995).

The model for student tracking

The model follows the student through the system from enrolment, through the assessment experience and via the delivery route. The

model is further illustrated by case studies (in the full report) and suggested reporting procedures.

Recruitment: enrolment and registration

The project team spent a considerable time unravelling the concept of 'enrolment'. It was finally accepted that the IPOS (individual programme of study) acting as a reporting feature rather than an entity, could enable the student to be tracked from the moment of first enquiry, through a lifetime of learning experiences at the college. The dynamic nature of the IPOS would work as follows:

- The student's name and address would be recorded at the moment of initial enquiry through an initial guidance session to the moment of enrolment when the student would be allocated a unique college number (a code for life) when the IPOS is first set up.
- The student is then registered on one or more qualification aims, units of assessment, modules of delivery or courses of delivery.
- Further data would then be added as the student and college continue to negotiate the IPOS.
- The IPOS report would act as the student's on-going record of achievement at the college, and could be printed out as and when required.

The individual programme of study

(i) Definition: an IPOS is the individual's learning aim, which may be one or more qualification aims. The individual programme of study is delivered through one or more modules of delivery.

(ii) Explanation: the IPOS is a reporting feature rather than an entity. It is in effect synonymous with the student. There will be an IPOS for each student. The IPOS illustrates the individual action plan for the student

which has been negotiated as part of the learning contract between the college and the student. It is anticipated that student information would be stored in perpetuity in order to support the lifetime learning of the student.

(iii) Associated data: reference to personal data, including...

- unique life-long college code for each student
- date of enrolment at the college
- personal tutor(s)
- fields for guidance/review data, for example, diagnostic test and any agreed additional support
- reference to QA(s) achieved
  - where achieved
  - expiry date/validity
  - verified
  - date(s) achieved
  - credits and credit equivalences
- QA(s) intended
  - start date

Qualification aim (QA)

(i) Definition: a qualification aim is, currently, a qualification aim as coded on FEFCW's database of qualifications. This definition may be extended over time. The qualification aim may be made up of one or more units of assessment and delivered through one or more modules of delivery possibly grouped into a course of delivery.

(ii) Explanation: qualifications are nationally recognised awards and may vary in size from very small awards achieved in a few hours or days to very large awards that would normally take two years to achieve. Qualifications may be awarded as a result of terminal, interim and

continuous assessment. Prior learning may be assessed to demonstrate evidence of the achievement of all or part of a qualification. FEFCW attainment funding is related to the achievement of recognised qualifications on the database. An extra percentage, currently 5%, is funded for NTET related attainment for qualifications considered to be equivalent to NVQ Levels 2 and above. This data will need to be differentiated on the system.

(iii) Associated Data

- QA code (nationally attributed)
  - validity/expiry date
  - linked UOA code(s)
  - core/mandatory/optional/additional
- Linked COD/MOD code(s)
  - QA achieved
    - date achieved
    - date verified
    - credit and level/grade
    - NTET status
  - QA not achieved
    - withdrawal date
    - transfer date
    - resit date
    - studying (default)
    - failed
    - *QA part-achieved (no further achievement sought).

** This is required as long as QA(s) are defined in a particular way by Funding Councils so as to concentrate on full qualifications rather than part qualifications.*

Unit of assessment (UOA)

(i) Definition: the unit of assessment is a coherent set of learning outcomes (elements). It is the smallest block of accreditation which a student can achieve.

(ii) Explanation: units of assessment are nationally recognised, externally validated blocks of achievement. For the achievement of Open College Network approved Units the student can be awarded credits at the specified levels (OCN credits). FEFCW attainment funding is available for the achievement of OCN credits. Other units, such as GNVQ units, BTEC ND units and modules of A Levels form nationally recognised parts of full qualifications. These parts are not recognised for outcomes/attainment funding until the full qualification is achieved. Units of assessment may be achieved within one or more modules of delivery. Units of assessment at different levels may form different parts of the same modules of delivery.

(iii) Associated Data

- UOA code
- Associated assessment data is static and related to the relevant unit database (NCVQ, BTEC, FFORWM, etc)
  - expiry date/validity
- Linked QA(s)
- Linked COD/MOD codes(s)
- Linked elements (although these links may be explicit only through the unit database, giving full unit data and the elements tracked, either through a computer or paper-based tutor system)
- Achievement status
  - UOA achieved
    - date achieved
    - date verified

- credit and level/grade
- NTET status

– UOA not achieved
- withdrawal date
- transfer date
- resit date
- studying (default)
- failed

Elements

(i) Definition: the element is a stated learning outcome. Common elements can be found in different units of assessment. Common elements can be found in different modules of delivery.

(ii) Explanation: elements may be tracked for achievement purposes by tutors who may have mapped out the curriculum delivery plan across a matrix of modules, to enable a variety of students on a variety of qualification routes to attain the range of elements necessary for their individual achievement of relevant units of assessment. Elements therefore relate to UOAs and MODs in a varied way. Tutors may currently record student achievement of elements using paper based systems. These may or may not become computerised in time.

(iii) Associated Data:

- Element identified (1, 2, 3 etc of the UOA)
- Linked UOA code(s)
- Linked COD/MOD code(s)
- Assessment type
- Shelf life
- Achievement status

- Element achieved
  - date achieved (for NVQs the element may need to be achieved on several occasions)
  - date verified
- Element not achieved

Module of delivery (MOD)

(i) Definition: the module of delivery is a subset of a learning programme. It is a block of delivery designed as a vehicle for a set of learning opportunities which are institutionally devised. Students complete modules of delivery rather than achieve them. A single module of delivery could comprise an individual's programme of study. Modules of delivery may consist of a period in the workplace or a trip to France, as well as periods in the classroom.

(ii) Explanation: modules of delivery will differ between institutions. They will be designed to deliver the particular requirement of particular learning providers in the most efficient manner. They are the instrument whereby the college can offer the maximum flexibility to meet increasingly differentiated learner needs in the pursuit of nationally recognised and customised learning programmes.

(iii) Associated Data:

- MOD code
- Linked UOA code(s)
- Linked QA code(s)
- Linked elements (although these links may be explicitly only through the unit database, giving full unit data and the elements tracked, either through a computer or paper-based tutor system).
- Timetable information
  - start/end dates

Course of delivery (COD)

(i) Definition: if deemed desirable, institutions may cluster modules of delivery to form a course of delivery. A module of delivery may be linked with any number of such courses of delivery. A course of delivery can comprise any number of modules of delivery.

(ii) Explanation: as with modules of delivery, courses of delivery will differ between institutions. They will be designed to suit the particular requirements of particular learning providers in the most efficient manner. The notion of courses is considered to be a useful one even though it has been noted here that the single module rather than the single course can constitute a student's programme of study.

(iii) Associated Data:

- COD code
- Linked MOD code(s)

Financial fields

At each level, additional fields may need to be included to show financial information: costs, links to cost centres, fees, funding sources, etc.

Data flows

The data flows are shown in a diagram provided with the specification. Dotted lines show possible connections between the individual student assessment and the college delivery parts of the diagram.

National CMIS specification

The National CMIS Board (now part of NILTA) has produced a college information systems specification which is reproduced below:

The changing world of further education has placed new demands on college management information systems (CMIS) and it is expected that the future requirements of external bodies such as the FEFC will continue to evolve during the next one or two years. To meet these new types of demands, the specification for CMIS has been radically altered; no longer will it be acceptable for changes to take months to implement. In the new environment, software suppliers will be forced to act in concert with users and not develop new features in isolation. The following 'specification' outlines those features of software which we believe are essential for all colleges in the times of change.

1. *The software should operate, without conversion, on all commonly used hardware platforms.*

2. *The system must be capable of using any of the major database management systems (DBMS) to store data, and must be able to access files on different DBMS systems concurrently.*

3. *The system must be capable of not only reading data from a variety of DBMS but of writing to those DBMS files as if they were native files.*

4. *The data should be available to the user from outside the system and development tools available to allow the user to write local routines using the primary data and not data which has been downloaded from the CMIS.*

5. *The tools used to develop the software should be state-of-the-art and therefore allow amendments and changes to be made easily and swiftly with fully documented audit trails.*

6. *The CMIS should be capable of amendment on site and using modem link. It should not be necessary for [technical staff] to visit the site to upgrade software thus incurring high costs and inconvenience.*

7. *The system should incorporate facilities for the adding of new fields to existing files without major upgrade; adding fields to files should be through modem support.*

8. *The system must be fully integrated; it should not be necessary to download data from one module to another. Modules should always use common data.*

9. *Third party software incorporated into the CMIS should run seamlessly and be transparent to the user.*

10. *The CMIS must be able to be implemented on a module by module basis and when a new module is "switched on" the software should start using files immediately.*

11. *The CMIS should cover all of the administrative functions of the college without the use of additional third party software.*

12. *Systems should run on hardware configurations of differing size and capability, which are determined by college size.*

13. *The system should be able to create documents and reports in whichever form is required by either the receiving organisation or the college.*

14. *The system must be able to produce all of the data required by the Data Protection Act, students or staff, on demand.*

15. *The system must have in-built security.*

Further information about the specifications can be obtained from the organisations concerned.

Appendix 2

Student tracking software

Surveys, for example by FEFC, show that most colleges have computer software for tracking students. The issue is rather the particular functions of that software and how far it fulfils a college's wider curriculum purpose. Software suppliers whose products include reference to student tracking are detailed below. The inclusion of a supplier in this section does not imply that FEDA approves the software; absence of any supplier does not imply that software is unsatisfactory. Any related descriptions of the software are taken from available material published by the suppliers or sent by them to FEDA on request. There are regular meetings between FEFC staff and software suppliers to discuss issues of mutual interest and to which any known suppliers are invited. Details are given in **Council News** (FEFC 1995d).

ACI UK Limited

Address: Barons Court, Manchester Road, Wilmslow

Product: 4D

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Description: Tracks enrolment, induction, on-course milestones and amendments, exit and accreditation. Cross-referenced to tutor, company and learning materials issued to student. Learning materials cross-referenced to learning accreditation/outcomes (typically NVQs).

Technical: Macintosh 4 Mb memory client/server architecture. Windows client available.

Links: Can be linked to Oracle.

Active Data Systems

Address: Unit 22, The Enterprise Centre, James Street, Carlisle CA2 5BB tel: 01228 42373 x 222 fax: 01228 514484

Contact: Mark Lancaster

Product: TERMS: Total Enrolment and Resource Management System

Description: TERMS will track student name, address, concession, enrolment, analysis codes, exam entries, room accommodation, facility hire, debts and accounts, waiting lists for courses. It will prepare several reports including course register, debt tracking, LEA statistics, FEFC data, DfE statistics. TERMS can also maintain purchase orders, lecturer claims, contact list and mail-lists. Its use is determined by the college setting up access and security rights for individual users.

Technical: Minimum requirement is a 286 PC with 2 Mb of memory and 40 Mb free hard disc space. Recommended PC is a 486 with 100 Mb free hard disc and 4 Mb memory. TERMS is muti-user and will run on Novell, MS-NET etc. Other operating systems include Unix (several varieties) and VAX VMS.

Links: Currently via report/data production or by bespoke modification. Developments are currently being made to produce FEFC DLE data directly.

Aldcliffe Computer Systems Limited

Address: St Leonard's House, St Leonardgate, Lancaster LA1 1NN tel: 01524 381165 fax: 01524 846069

Contact: Anne Garth

Product: Maytas

Description: Maytas is a powerful computer-based recording system designed for training providers for the administration of training schemes.

Technical: 386, 4 Mb memory minimum.

Links: Files can be created and exported from Maytas in various formats to import into other packages.

Bilston Community College

Address: Green Lanes, Bilston, WV14 6EW tel: 01902 353929 fax: 01902 405547

Contact: Stephen Ibbs

Products: Oasis APL-GNVQ, Centre for Windows

Description: Oasis enables students to identify what prior skills and achievements they have acquired. It is based on a huge database of questions written around the NCVQ specifications by college tutors teaching on the various GNVQ programmes. Centre enables student tracking and monitoring. It holds personal details, records of attendances, notes of meetings held, advice offered,

short term goals and destinations. A large number of statistical reports can be generated.

Technical: Oasis is available in DOS, Apple and Windows versions. Centre in Windows version.

Links: Import/export of data from/to MIS.

Blackpool Sixth Form College

Address: Highfurlong, Blackpool FY3 7LR

Contact: David Price

Product: Cosmex

Description: Cosmex is a physical student tracking and registration system. Therefore, as students move from area to area, then their presence can be shown by the minute at classes, lecture theatres, learning resource centres and general registration in 'real time' mode, at the college registry.

Technical: 8 Mb of RAM, 160 Mb of hard disk; Mac 475 or Power Mac 6100 with Ethernet. Cosmex is written in Pascal. A remote version of Cosmex allows the system to be interrogated by other PCs in staff rooms or by senior college staff.

Links: From ASCII files containing student details and timetables etc; to a library system (Libra) and a college management system (SIMS, FEMIS, Cocoa etc).

Bracknell College

Address: Church Road, Bracknell RG12 1DJ tel: 01344 420411 fax: 01344 860720

Contact: DA Byrne

Product: System Trak

Description: The system was designed to meet the demand for data, based on individual student activity. It is hoped therefore that the system will eventually give information at unit and therefore funding level. Optical mark reading is used to input the pattern and status of modules (units) to be taken by a student after consultation with their personal tutor. Updated on a regular basis as required.

Technical: PC database written in Paradox. 486 PC with 8 Mb memory. Paradox Run-Time. Optical mark reader.

Links: Accepts input in DOS format – link proven to FECAS. Future development will include links to other information systems within the college.

Bromcom Computers plc

Address: 417-421 Bromley Road, Downham, Bromley BR1 4PJ tel: 0181 461 3737 fax: 0181 461 3993

Contact: Anne Russell

Product: College *ears*

Description: *Ears* (Electronic Attendance Registration System) enables registration to be taken by the tutor via an A4 size folder. The folder uses radio communication to transfer data instantly and directly to a central office *ears* PC. *Ears* is an accurate on-line student tracking system; it generates the FEFC-required statistics plus a full range of standard and specific reports at the touch of a button. Student enrolment, attendance and drop-out records are tracked. The system aids resource management by providing a log of the staff member taking the class register and time of transmission. *Ears*

will also provide an analysis of room usage within the college. Any member of the college staff issued with a PIN number can use the system whenever they wish during the college day. Personal communication facilities such as one-way messaging, pager, electronic mail and alert call provide college-wide mobile communication. Increasing student retention is achieved as the information recorded on *ears* is readily available, accurate and up-to-date thus allowing tutors to counsel students at an early stage reducing the likelihood of the student dropping the course. *Ears* reduces mundane tasks for lecturers, enabling them to spend more time on teaching-centred work such as student care or increased preparation time.

Technical: *Ears* comprises a Bromcom PC with an Intel 80486 microprocessor plus a tape back-up unit, a modem for remote support, and a printer. The system comes with the complete *ears* attendance software suite. A number of radio transceiver units are installed in a network around the college in designated registration areas.

Links: *Ears* interfaces with the administrative software currently used by colleges such as SIMS, FEMIS, CovTech, FECAS, Script, avoiding re-entering student details. *Ears* hardware and software is designed to be integrated into existing college MIS networks such as Novell. Existing PCs can be used to update attendance registers directly through such a network.

Capability

Address: 4 Lodge Road, Caerleon NP6 1QS tel: 01633 423935

Product: Capability II

Description: Supports a candidate in monitoring progress and compiling evidence for a porfolio.

Cognisoft Limited

Address: Carrington Business Park, Manchester M31 4DD
tel: 0161 776 4239

Product: Harvest

Commercell Limited

Address: 9 Bridge Street, Walton-on-Thames KT12 1AE
tel: 01932 253890 fax: 01932 228086

Contact: Ken Gaines

Product: Compass

Description: Compass is an extensive student tracking and management system incorporating modules from enquiry/application to examinations, including all the required statutory reports which are supported and maintained as part of the standard annual maintenance agreement. In order to work effectively within a college, Compass can be quickly and efficiently tailored to meet the standards and work practices that already exist. Annual business plan, human resource management and resource/room control are just some of the management information system modules that are also provided. Compass has been designed to be used by all staff members, both academic and administrative, including senior managers. Apart from the broad range of reports that are built into each module of the system, Compass comes with report generation facilities for specialised

ad hoc inquiries. Full Compass details are available on request.

Technical: Compass can be run on on DOS/Windows, Unix, VAX and Open VMS, as a native or client/server application. The system supports a variety of database engines including Oracle, Btrieve and C-ISAM. Typical PC server: IBM compatible 486/100 or Pentium, 500 Mb or 1 Gb hard disc (college size dependent), 16 Mb to 32 Mb memory (college size dependent), Novell 3.12 or above. Specific technical details and a full list of supported databases available on request.

Links: Compass includes a financial interface module to link to the college's accounting system, apart from links to standard office products. Commercell can provide accounting systems, payroll systems, word processing and other office software, all of which can be linked to Compass. The transfer of data and linking to other college systems is developed in conjunction with the college and their particular requirements.

CovTech Systems Limited

Address: Winfray Building, Queens Road, Coventry CV1 3LG tel: 01203 226266 fax: 01203 221262

Contact: Sheldon Hanna

Product: Systems Intuition

Description: Provides a complete Windows-based student tracking system that allows a college to collect and analyse data about students from initial enquiry to final destination including details of enquiry, admission, enrolment, learning agreement, attendance, assessment,

achievement, destination. Consists of modules for student applications, student enrolment, class meetings, examinations entry. Other products available in the Systems Intuition range include: finance, personnel, payroll, timetabling, estates management, diary management.

Technical: Written in a 4GL called UnifAce. Operates on a wide range of hardware platforms including IBM, DEC, VAX and PCs. A college can select a preferred DBMS including MS SQL Server, C-ISAM and Oracle. A range of data entry techniques is offered. Specific hardware and software configurations are available upon request.

Links: All of the modules in the Systems Intuition product suite are integrated so that the base data can be shared by all modules. Colleges can choose to implement the modules on a migratory basis. Modules can also be linked with other commercial MIS packages.

Devon Information Technology Agency Limited

Address: Norwich Union House, 12 Bedford Street, Exeter EX1 1LQ tel: 01329 495533 fax: 01329 499864

Contact: Bernard Howard

Product: DITA Student Manager

Description: Full client/server event logging and management system based upon Oracle RDBMS and DITA Core. Will support logging of any user-defined event type. Event management is integrated within DITA Student Manager applications.

Technical: Oracle 7. Any supported platform. Host-server 486 Intel processor or better running Microsoft Windows 3.1 or higher.

Links: Full linking technology supporting third party databases.

Dolphin Computer Services Ltd

Address: 5 Mercian Close, Watermoor, Cirencester GL7 1LT tel: 01285 659291 fax: 01285 656941

Contact: Steve Hope

Product: Systems Intuition modules

Description: Systems Intuition modules include: enquiries and applications, enrolments and ISR, examinations and assessment, student resource management, scheduler and CATS system. The System Intuition suite of products comprises a complete college MIS, which includes a full and effective student tracking system, used by over 50 FE colleges for marketing analysis, enquiries and applications, through to enrolments and FEFC returns, calculation of tariff units, student attendance and resource monitoring, examinations and assessments and, finally, destinations.

Technical: The Systems Intuition suite of software is designed to meet the needs of FE colleges through the use of client server and open systems architecture, resulting in software which is hardware, database and operating system independent, eg Unix/Sco Unix, DOS and NT. Within a Windows environment may be run on a 486 8 Mb RAM client, or alternatively on a dumb terminal in character mode.

Links: Using UnifAce as our development language, Dolphin can provide links to a number of other college management systems, eg Sun Accounts, MicroCompass, Fretwell-Downing, EMIS, Covtech, SITS.

Educational Developments Limited

Address: 1 Royal Navy Avenue, Keyham, Plymouth PL2 2AE tel: 01752 605257 fax: 01752 606408

Contact: Paul Dawkins

Product: Recorder/GNVQ

Description: The system would enable tracking of an individual's progress from primary school, through to further education (including G/NVQ), and out into the workplace. A records transfer system for inter-school movement etc is an integral part of the package. An ILS module allows the production of materials that can be easily created and edited by teachers/tutors. The source of information for the mapping of curriculum areas can be many and varied. It allows the extraction of information from CD-ROM, Internet, and indeed any related computer source. This module reports all assessment to the recorder package for reporting and monitoring. What is assessed, the content and the determination of an assessment, is under the direct control of the teacher.

EMIS Limited

Address: Coombe Lodge Farmhouse, Bourne Lane, Blagdon, Bristol BS16 6RF tel: 01761 461100 fax: 01761 461101

Contact: Andrew Gale

Product: FEMIS Student Record, HEMIS Student Record

Description: Both systems record student qualifications, programmes on which enrolled, past enrolments, student status, CATS, APL. FEMIS has an examinations system that records details of external and/or internal examinations. FEMIS also has an attendance monitoring system: FEMIS Registers. HEMIS has an assessments system that can record any type of examination, test or assignment. Full details available from EMIS Business Services.

Technical: Both FEMIS and HEMIS run under Oracle and require a mini-computer. Memory dependent on number of users, operating system etc.

Links: FEMIS links to Oracle accounting, CEFACS Accounting and Syllabus Plus Timetabling.

Fretwell-Downing

Address: Brincliffe House, 861 Ecclesall Road, Sheffield S11 7AE tel: 0114 268 6090 fax: 0114 268 6423

Contact: Mark Sampson

Product: Education Business System – Students, On-Record, On-Course

Description: Education Business System offers colleges the opportunity to track students from first enquiry to achievement at every stage of their college life. On-Course deals with enquiries both within the college and on the Internet (if required) and is integrated with students for applications and enrolments. Students covers all elements of college life including image capture, exams and attainments, registers and attendances etc. On-Record is the continuous student

record system that provides a full profile of a student's time with a college including documents and fully audited ISR records.

Technical: Full Oracle 7 and Windows client/server systems. Multi-platform and operating system choices. Servers include IBM RS 6000, DEC Alpha, Hewlett-Packard, SCO-Unix PCs, and many others. PC requirements vary according to site circumstances. Additional information is available on request.

Links: On-Course and On-Record are both able to integrate with most existing CMIS. Open systems standards in Education Business System allow data to be 'traded' with other applications.

GTi Educational Systems Limited

Address: Ashfield Road, Salisbury SP2 7HL tel: 01722 338484 fax: 01722 337167

Contact: Tim Baker

Product: TRACS II

Description: Anyone can use the swipe card to log in to any swipe point located in the college boundaries. Date, time, place of log-in are recorded which can, against a database, produce an exceptions report to any pre-defined parameters.

Technical: PC file server (486 DX2-66, 4 Mb RAM, 340 Mb hard disc); RS232 network cable to intelligent battery-supported data collection points which are polled on a regular basis to update the PC's working files.

Links: Many links are pre-made with others coming on-line regularly. These are to timetabling, statistical returns, fire control systems, personnel databases etc.

Hertford Technology

Address: Hamilton House, 111 Marlowes, Hemel Hempstead HP1 1EB tel: 01442 234600 fax: 01442 234588

Contact: Geoff Rump

Product: Student tracking module of SAMS (Student Administration Management Systems)

Description: The system allows users to track a potential student from their first contact/enquiry with the college and produces a variety of marketing and performance statistics based on college-defined milestones and timescales. Through enrolment the system allows module selection for a qualification aim and builds an individual student's programme of study to class level. The user can monitor attendance and the system provides early warning of consecutive absence. The system provides an on-line review facility of student records. The user can record assessment information in note form together with achieved units relating to level and awarding body. More details are available on request.

Technical: The application is developed with Progress 4GL, and a Windows-based client/server operating environment is preferred but not compulsory. Preferably 486 PCs with 4 Mb memory or greater should be used.

Links: Progress provides direct gateways to most open database structures, for example Oracle, Sybase,

DBase. Additionally we provide direct links to word-processsing and spreadsheet applications and can transfer data via flat ASCII files if required. Progress is ODBC-compliant.

LJ Technical Systems Limited

Address: 5/6 Francis Way, Bowthorpe Industrial Estate, Norwich NR5 9JA tel: 01603 748001

Contact: Damian Breeze

Product: TMS 3000 computer-based classroom management system

Description: Networked training system with intelligent terminals for tracking competency-based training in technology. Features hardware and software for electronics-based courses.

Technical: 386 DX 8 Mb RAM minimum. Windows 3.11.

Links: Data files exportable in DBase format.

Manchester Open Learning

Address: MANCAT, Lower Hardman Street, Manchester M3 3FP

Contact: David Wardell

Product: The Force

Description: Tracks the design and development of customised programmes; tracks the delivery of materials, tutorials and workshops to individual students; links personal tutors to students; tracks student and tutor performance; links programme delivery materials to assessment criteria; gives full text of learning

materials, searchable from programme or assessment criteria.

Technical: Uses 4D Server published by ACI UK Ltd.

Links: Has procedures to access Oracle-held information; display and writing of such data in both directions.

MicroCompass Systems Limited

Address: Riverside House, Normandy Road, Swansea SA1 2JA tel: 01792 470733 fax: 01792 468070

Contact: John Drew

Product: Student 2000

Description: Student 2000 provides, as part of an overall management information strategy, an ability to track students. Students may be tracked prior to entry to the institution, recording information and pre-enrolment guidance, through the admissions and enrolment process and subsequently, whilst enrolled, on to the individual's learning programme. The curriculum structure within Student 2000 allows for a three-tier curriculum approach where a modular or unitised curriculum is utilised. Students enrolled within the system may have achievement and assessment recorded against their individual learning programmes, and are subsequently tracked through their time in the instution. Exam details can be recorded and tracked and, where required, electronically interfaced with the exam boards. The system has been developed to be used when required by all staff recording information and provides a unique enquiry screen which pulls together all the student data.

Technical: Student 2000 is delivered within the Unix environment and has been delivered successfully on many platforms, including IBM, ICL and HP.

Links: Student 2000 forms part of College 2000, an entire college information strategy. College 2000 consists of Ledger 2000 – a financial management system, HR2000 – human resources, and Estates 2000 – a solution to assist colleges with managing their property. All systems can be integrated where required. Alternatively MicroCompass can provide integration to third party products.

Network North Limited

Address: Trident House, 301 Airport Road West, Belfast BT3 9AE tel: 01265 848962 fax: 01265 848964

Product: Computerised Home to School Link

Description: A dedicated on-line service for institutions delivering a modularised curriculum. Includes a bank of unit descriptors, learning material and assignments, bulletin board, and e-mail service.

Technical: Based on the French Minitel system, using VT258 Minitel-type terminals.

Open Campus Enterprises

Address: Blackburn College, Feilden Street, Blackburn BB2 1LH tel: 01254 681724 fax: 01254 694291

Contact: Mrs B J Calvert

Product: Student Attendance Monitoring System

Description: Developed at Blackburn College for use in several of its resource-based learning centres including the

library. It limits access to authorised users, records all student attendance, lists current students in a centre, lists all attendances of a student, provides statistics by student, course or faculty, and provides graphical reports. The system uses a database of students, staff and other users, which can be easily added to or deleted from, using user-friendly data entry screens. Students swipe their ID badge/pass (containing a barcode) through a reader on entry and exit. The system can be configured to open turnstiles in addition to recording the information (ie student, location, date and time). Configurable parameters include location, reader type, entry, exit or both, validation of card number, open turnstile, store all information enabling graphics, or store information in an ASCII file.

Links: Can export details into MIS.

Otley College

Address: Otley, Ipswich IP6 9EY tel: 01473

Product: Portfolio Development Toolkit

Description: For the use of assessors to monitor candidate progress.

Performance Monitoring Systems Limited

Address: 52 Coventry Street, Southam CV33 0EP tel: 01926 814846 fax: 01926 815516

Contact: Janet Cox

Product: Monitor

Description: Unlimited entry for candidates, assessors and verifiers. Extensive personal details may be held

enabling a full range of personnel reports to be generated. Meets awarding body requirements. Matches assessors to candidates by geographical location and vocational area. Records all assessments made, together with outcomes. Highlights those due for re-assessment. S/NVQ and other standards. Automatic skill transfer between records. Report generator. Workplace assessment module.

Technical: Windows 3.1 or later. Fast 386, 486 or better 4 Mb RAM plus hard disc with at least 20 Mb free memory.

Links: To in-house personnel systems can be made. Supplied network ready. Paradox compatible. ODBC and SQL allowing connectivity to other database tables.

Plus Business Systems Limited

Addres: Plus House, 15 Matthew Street, Dunstable LU6 1SD
Post 16 Services: ISS Education Department, 25 Dollman Street, Heartlands, Birmingham B7 4RQ
tel: 0121 380 5161

Contact: Mark Mynard

Product: Aqua

Description: Holds all relevant ISR, SIR and individual finance details from entry level qualifications through to intended destination. Can be used at centre level, at point of delivery, through to corporate level, for aggregated data. Data collected includes relevant history, status of student, accreditation details and enrolment.

Technical: Stand-alone PC or network (Novell, Lan Manager, Lantastic, Powerlan, personal netware). 4 Mb or

greater memory. Disk capacity: system 13 Mb; data 3 Kb per record.

Links: Links to DLE and ISR software. Includes qual aims database. Includes Royal Mail's PAF database. Links include staff details and payroll.

Public Sector Software Limited

Address: 55 Bath Street, Gravesend DA11 0DF tel: 01474 329932 fax: 01474 335053

Contact: Martyn Chesters

Product: Vocate

Description: Tracks and monitors all aspects of student activity and performance in NVQs/GNVQs. Uses optical mark readers for fast data transfer. produces reports on individuals or groups of students. Complete breakdown of achievements at PC or element level. Portfolio log. Action plan. APL facilities. College-wide statistics for FEFC and TEC requirements. Used by teaching staff and/or students. Little IT skill required.

Technical: Any IBM or compatible computer with minimum 4 Mb RAM and 386 processor, 25 Mb approximate hard disc. Stand alone or network. Optical mark reader desirable, not essential. Any printer type.

Links: Will interface with most current college MIS systems (FEMIS, Compass etc) for the import and export of student details, achievements etc.

Reference Point Limited

Address: PO Box 609 8-10 Octagon Court, Octagon Parade, High Wycombe HP11 2XU tel: 01494 510932 fax: 01494 510952

Contact: Tanya Morris

Product: Easi-Track

Description: Comprehensive tracking, allowing users to monitor progress in as much or as little detail as required. Full standards supplied free-of-charge on disc for use with the system. Easi-Track can be used centrally or there is the option for candidates to have their own diskette for evidence cross-referencing, action planning, CV generation etc. Sophisticated analysis including unit achievement/non-achievement breakdowns and training needs analysis.

Technical: IBM PC or compatible, 486 or above, 1 Mb RAM. Windows version in development for MS Windows 95. This version will run on almost any platform.

Links: Easi-Track has a standard export format (SDF). Imports can be undertaken with the client for little cost. The system can also be linked to an optical mark reader (OMR).

Salamander Systems

Address: Fourwinds, 32 Ilanvain Drive South, Ascot SL5 9HT Sandersons PSS Limited South Point South Accommodation Road Leeds LS10 1PP

Contact: Paul Simpson

Product: FECAS, ENROL, Sanderson ISR

Description: The Sanderson college software packages provide on-line student tracking with data entry and information output requirements available in different formats for all levels of college requirements. The software covers enquiries, applications, enrolments, examinations and destinations, incorporating facilities to track relevant financial details. The FEFC individualised student record requirements are fully met in an easy-to-use manner.

Technical: FECA operates upon an Ingres database with a minimum memory requirement of 32 Mb. The system operates via PC or terminal access and is multi-user in all aspects. Full details can be given on request.

Links: Links are provided between the Sanderson software packages, and links to other packages can be produced on request.

SCET

Address: 74 Victoria Crescent Road, Glasgow G12 9JN tel: 0141 337 5000 fax: 0141 337 5050 e-mail @scet.orig.uk

Contact: Phil Strange

Product: Learner Profile

Description: Software allows assessment information to be captured in the classroom against student details previously uploaded into an Apple Newton. Data can subsequently be downloadeed into database or applications on Mac or Windows machines.

Technical: Apple Newton; hardware and software bundles available – contact SCET for details.

SCET

Address: 74 Victoria Crescent Road, Glasgow G12 9JN tel: 0141 337 5000 fax: 0141 337 5050 e-mail @scet.orig.uk

Contact: Lorna Renton

Product: CSCAMP

Description: CSCAMP allows a student to be tracked throughout their time with a college, from enquiry and application through attendance and assessment. Deals with unitised curriculum through SCOTVEC modules, units group awards and SVQs. Allows input from electronic data capture eg swipe cards, OCR, OMR etc. Provides output for SOED statistics and assessment returns to SCOTVEC and SEB via a floppy disk. Allows multiple enrolments for same student to be linked together.

Technical: Uses Micro Focus Cobol on Sun Sparcstation running under Solaris 2.x

Links: CSCAMP forms part of the ICL solution for CMIS as supplied to 22 (out of 43) Scottish colleges. Provides links to finance (Sun Accounts/Business) personnel (SDNMs), physical resources (DeCal Badger) and EIS (Epic)

Scientia Limited

Address: St John's Innovation Centre, Cowley Road, Cambridge CB4 4WS tel: 01223 421221 fax: 01223 421218

Contact: N Duncan

Product: Syllabus Plus student planner, course planner

Description: Students may participate in the planning of modular/unitised course programmes over three

years in advance. The balance between student demands and college supply is managed and used to generate a course structure and highly resource-efficient timetable. Each student has a timetable and is linked to individual activities.

Technical: Clients: PC486, 8-21Mb RAM, 200Mb hard disk; (optional) server: Oracle - Sun, HP, Sequent.

Links: FEMIS, CHA, generic text interface to any database system.

Scottish Further Education Unit

Address: Castle Business Park, Stirling

Contact: Ian Robertson

Products: TPS (Training Planning Software), MARIA (Management of Integrated Assessment), and PLP (Personal Learning Planning)

Description: TPS allows individual plans to be created and monitored by tagging development/review notes to the units/elements/performance criteria of vocational qualifications. Plans and training achievement reports are in the form of milestone reports over a set time period. MARIA assists course designers to map the outcomes of integrated assessment tasks to the performance criteria of the relevant vocational qualification. Student achievement of integrated assessment tasks is recorded, leading to an automatic update of the mapped performance criteria. PLP is software to allow individually tailored programmes of learning to be devised and learner progress monitored in relation to the aims of the programme, learning units and individual personal goals.

Technical: TPS: PC with minimum 640K RAM; MARIA, PLP: Windows plus 8 Mb RAM.

SIMS

Address: The SIMS Centre, Abbot's Road, Priory Business Park Cardington, Bedford MK44 3SG tel: 01234 838080 fax: 01234 938091

Contact: Stuart Taylor

Product: SIMS Post 16 Suite

Description: SIMS Post 16 software keeps a complete record of all student activity within the college. details held are original application, courses applied for and those actually taken, date commenced and finished programme of study, modules undertaken accredited against FEFC qualifications aims database, outcome of programme of study, and ISR tariff units for each student on roll. The software is intended for use by senior management staff, admissions officers and all lecturing staff.

Technical: 486 PC. MS-DOS version 6.2. Hard disc 500 Mb stand-alone or 1-2 Gb for file servers, depending on the size of college. 4 Mb RAM, 8 Mb for network systems. Network software: Novell 3.11.

Links: Data can be exported to proprietary software, eg Word for Windows and Excel.

Software Solutions (Warwick) Limited

Address: 13 Warwick Place, Leamington Spa CV32 5B tel: 01926 8810591

Contact: Brian Gill

Product: Rocket, Connect, Target, Reg

Description: Students can be tracked by: NVQ unit, element, PC, range; GNVQs grading criteria; modules (SRF) grades, A level grades; assignment/assessment marks grades, formative or summative. All combinations can be collated and weighted. Systems can be used by: student, tutor, in workplace. Records all kinds of assessments: marks, grades, NVQs, GNVQ, reviews, awards in isolation or within complex marking schemes used by tutor and/or student. Allows on-going formative entry of data or summative information.

Technical: 286 – Pentium. 512K base memory. Full networking facilities on Novell, LAN Manager, NT. Windows system in development; currently operates in DOS shell.

Links: Data can be transferred in from any system. Customisable option to import data for students, courses, employers etc.

Stox Software

Address: PO Box 1295, Weymouth DT3 6YB tel: 01305 833830 fax: 01305 771313

Contact: Michael Seall

Product: SMARTRACK

Description: Will track progress of NVQ and/or GNVQ candidates. Maintains records of units and elements being studied and assessments and verification. User can query progress of candidate, group of candidates, or unit or (GNVQ) assessment activity. System maintains candidate enrolment data and initial asssessment

records. Co-ordinator's reports provided with push-button query facility. Additional facilities include attendance recording, letter/memo writer, work placement records, ROA generator, assignment writer and archive.

Technical: Windows 3.1 or higher running on minimum 386 with 8 Mb RAM. Macintosh 68020/30/40 plus System 6.07 or higher with 8 Mb RAM. Both require approximately 10 Mb hard disc for program files. Written on the Omnis 7 RDBMS.

Links: Simple push button import for candidate enrolment data with update facility. Simple attainment export to disc or network. Data can be selected with push button query facility.

Strategic Information Technology Services

Address: 1-2 Front Street Court, Front Street, Middleton on the Wolds YO25 9UA tel: 01377 217600 fax: 01377 217844

Contact: Sheldon Hanna (CovTech Systems Ltd)

Product: Systems Intuition

Description: Provides a system for tracking students on modular and unitised courses. The package includes student scheduling, assessment, award calculation, programme planning, room scheduling and examinations scheduling.

Technical: see CovTech Systems Ltd.

Links: see CovTech Systems Ltd.

Appendix 3

Support organisations

ADSET (Association for Database Services)

Chancery House
Dalkeith Place
Kettering
NN16 0BS
tel: 01536 410500 fax: 01536 414274

FEDA

The Further Education Development Agency superseded the Further Education Unit (FEU) and the Staff College in April 1995. The Agency offers publications, consultancy and training services across the range of curriculum, management and institutional development. Details from:

Information Centre
FEDA
Citadel Place , Tinworth Street
London SE11 5EH
tel: 0171 962 1280 fax: 0171 962 1266

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Fforwm Project

Details from:

Juliet Pierce
Fforwm Modularisation and Credit-based Development
Project
Main Block 2nd Floor
Ty Oldfield
Llantrisant Road
Llandaff
Cardiff
CF5 2YT
tel: 01222 575930 fax: 01222 575931

NILTA (formerly NAITFE)

The National Information and Learning Technologies Association offers a range of related services to members, with conferences, reports and developmental activities. Details from:

Malcolm Himsworth
Chief Executive NILTA
c/o College of Building
Kildare Terrace
Leeds
LS12 1DB
tel: 0113 234 3598 fax: 0113 234 0879 email: FES003

National CMIS Board (now part of NILTA)

As well as the information systems specification reproduced below, the former National CMIS Board provided for its members a specimen college information service policy, information service users' charter, and material related to the Data Protection Act. Details from:

Dave Hull
College Information Officer
Blackburn College
Feilden Street
Blackburn
BB2 1LH
tel: 01254 55144 fax: 01254 682700 email: d.hull@blackburn.ac.uk

(NAITFE and the National CMIS Board amalgamated into NILTA in August 1995)

NCET

As well as the extracts from case study reports contained in this publication, the National Council for Educational Technology has produced a range of material for further education, including titles on APL, assessment, and management information systems. Details from:

Jean Macdonald
NCET
Milburn Hill Road Science Park
Coventry
CV4 7JJ
tel: 01203 416994 fax: 01203 411418
e-mail: Jean_Macdonald@ncet.org.uk

Publications

The organisations above have all published material relevant to student tracking. The following are of particular note:

- MIS and the Curriculum (FEDA, planned)
- Using IT for Assessment (NCET 1994)
- Directory of Computer-Assisted Assessment Products and Producers (Guildford Education Services 1993)

NCET case studies

NCET colleagues have co-operated in the production of this report, having been trialling various related software in a number of institutions. Extracts from the results of the trials which relate to further education institutions have been used as illustrations in preceding sections and further details are given below. The activities of schools and HE institutions in the project are also of interest. Further details from NCET.

Basford Hall College

To investigate the potential for the use of a multimedia teaching and learning system for profiling students entering and progressing from further education.

Clarendon College

An evaluation of computerised adaptive testing.

Halton College

To identify software suitable for recording student progress on NVQs, which will operate effectively on portable computer equipment and which can interface with the main college system with regard to the ISR.

Oldham College

To evaluate a computerised system for recording core skills within records of achievement.

The Marches Consortium including Holme Lacy College of Agriculture

To evaluate an administrative system as a cost-effective vehicle for the assessing, recording and reporting of students on Youth Training (Careership) programmes.

The National Star Centre

An investigation of suitable ready-made MIS which would provide an integrated approach to finance, student administration, assessment and reporting on a college-wide computer network.

University of Portsmouth, and Guildford and Basingstoke Colleges

An experiment with portable peer assessment.

West Lothian College

To pilot and evaluate computer-managed assessment software for programmes of study in the care sector.

Appendix 4

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Association for Colleges (1995a) **G/NVQ Progress Report.** AfC

Association for Colleges (1995b) **FE Now.** No 17. AfC

Fforwm (1995) **Student tracking project 1995 report.** Fforwm

Further Education Development Agency (1995a) **Community profiling.** FEDA

Further Education Development Agency (1995b) **Evaluating systems of recording attendance.** (*RP980 project information bulletin available*)

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Further Education Funding Council (1995b) Individualised student record specification. **Circular 95/12**. FEFC

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Further Education Unit (1993b) **Developing Competence: implementation project**.*(RP761 project information bulletin available)*

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Further Education Unit (1994d) **Action planning and recording achievement with adult learners**. (*RP923 project information bulletin available)*

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Healing G (1995) Resource management using flexicards. **Learning Resources Journal** Vol 10 No 2 pp 36-39

Miami-Dade Community College (1994) **Project Synergy III**

National Council for Educational Technology (1994) **Using IT for Assessment**. NCET

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